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Oceans of Plastic

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Abstract

The effects of plastic pollution on the oceans as well as its effects on wildlife.

Oceans of Plastic

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There are more than 5 trillion plastic pieces weighing over 250,000 tons scattered around the oceans right now. Plastics are in every ocean and sea due to their durability and ability to float. Because of these combined abilities plastic can start at one end of the earth and make its way around the planet on ocean currents and tides, only to converge in bays and garbage patches around the world (Figure 1). These have damaging effects on global wildlife and human health around the world.

Figure 1. The locations of the five major global garbage patches.

Figure 2.
Comparison between a plastic bag and a jellyfish, the food of many turtle species.

The impact of plastic pollution through ingestion and entanglement of marine fauna are well documented. It is well known that one use plastic such as straws and plastic bags can be harmful to marine life, however even larger debris such as broken docks and netting can cause health issues by being a transporter of invasive species that can hitch a ride to a new part of the world. For us it is easy to differentiate between the plastic and natural items, but animals have a harder time with this. Numerous autopsies have shown that ingested plastic and tar are the primary culprits of stress and non-natural death for sea turtles. Debris including fishing line, ropes, nets, six pack rings, styrofoam, and plastic bags have been extracted from turtle digestive tracts. This is because plastic in the water strongly resembles the jellyfish, a common prey of turtles (Figure 2).

If we want to continue enjoying the benefits that plastic can bring without compromising the environment and incurring substantial economic losses, we need to align the entire plastics system around a common vision:

- Eliminate the plastic we do not need: the throwaway straws, cutlery, and cups; the unecessary packaging; and the items that can be replaced with better alternatives
- Innovate so all the plastic we do need is designed to be safely reused, recycled or composted
- Circulate everything we use, making sure the plastic we produce stays in the economy and never becomes waste or pollution

These three steps could change the fate of our oceans, and our lives.